

ABSTRACT

An electric power steering system includes: a band-stop filter 15a having a transfer function $G_1(s)$ for suppressing resonance, and a phase compensator 15b having a transfer function $G_2(s)$. The above function $G_1(s)$ is represented by an expression $G_1(s)=(s^2+2\zeta_{11}\omega_1+\omega_1^2)/(s^2+2\zeta_{12}\omega_1+\omega_1^2)$, where s : a Laplace operator, ζ_{11} : a damping coefficient, ζ_{12} : a damping coefficient, and ω_1 : an angular frequency. On the other hand, the above function $G_2(s)$ is represented by an expression $G_2(s)=(s^2+2\zeta_{21}\omega_2+\omega_2^2)/(s^2+2\zeta_{22}\omega_2+\omega_2^2)$, where s : a Laplace operator, ζ_{21} : a damping coefficient, ζ_{22} : a damping coefficient, and ω_1 : an angular frequency. Furthermore, the above damping coefficients ζ_{21} , ζ_{22} satisfy an expression $\zeta_{21} \geq \zeta_{22} \geq 1$. Thus, a filter such as a phase compensator may attain a design freedom while preventing the increase of arithmetic load, whereby both the suppression of resonance and a good assist response in a normal steering speed region, for example, may be achieved.